

In The Claims:

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Please cancel Claims 1-265 without prejudice and substitute therefor new Claims 1-36 as follows:

1. A method for mapping a heart comprising the steps of:
 inserting a mapping catheter having an ultrasonic position sensor into the heart;
 inserting at least one reference catheter having an ultrasonic position sensor into the heart;
 determining the position of the mapping catheter relative to the at least one reference catheter; and
 mapping a portion of the heart with the mapping catheter.
2. The method according to Claim 1, further comprising determining the position of the tip of the mapping catheter relative to the at least one reference catheter.
3. The method according to Claim 2, further comprising creating a geometric map of the portion of the heart with the mapping catheter based on the position of the tip of the mapping catheter.
4. The method according to Claim 3, further comprising mapping electrical activity of the portion of the heart with at least one electrode mounted at the tip of the mapping catheter.
5. The method according to Claim 4, further comprising reconstructing a surface of the heart based on the position of the tip of the mapping catheter.
6. The method according to Claim 3, further comprising performing a therapeutic procedure on the portion of the heart.

7. The method according to Claim 6, further comprising performing an ablation procedure on the portion of the heart.

8. The method according to Claim 3, further comprising measuring impedance of the portion of the heart.

9. The method according to Claim 3, further comprising measuring mechanical information of the portion of the heart.

10. The method according to Claim 9, further comprising measuring movement of the portion of the heart.

11. A method for mapping a heart comprising the steps of:
inserting a mapping catheter having an ultrasonic position sensor into the heart;
inserting at least one reference catheter having an ultrasonic position sensor outside of the heart;
determining the position of the mapping catheter relative to the at least one reference catheter; and
mapping a portion of the heart with the mapping catheter.

12. The method according to Claim 11, further comprising determining the position of the tip of the mapping catheter relative to the at least one reference catheter.

13. The method according to Claim 12, further comprising creating a geometric map of the portion of the heart with the mapping catheter based on the position of tip of the mapping catheter.

14. The method according to Claim 13, further comprising mapping electrical activity of the portion of the heart with at least one electrode mounted at the tip of the mapping catheter.

15. The method according to Claim 14, further comprising reconstructing a surface of the heart based on the position of the tip of the mapping catheter.

16. The method according to Claim 13, further comprising performing a therapeutic procedure on the portion of the heart.

17. The method according to Claim 16, further comprising performing an ablation procedure on the portion of the heart.

18. The method according to Claim 13, further comprising measuring impedance of the portion of the heart.

19. The method according to Claim 13, further comprising measuring mechanical information of the portion of the heart.

20. The method according to Claim 19, further comprising measuring movement of the portion of the heart.

21. A method for mapping a heart comprising the steps of:

- (a) inserting a mapping catheter having an ultrasonic position sensor into the heart;
- (b) inserting at least one reference catheter having an ultrasonic position sensor into the heart;
- (c) bringing the tip of the mapping catheter into contact with a wall of the heart at a location;
- (d) determining a position of the tip of the mapping catheter at the location;

- (e) adding the position to a map;
- (f) moving the tip of the mapping catheter to a second location; and
- (g) repeating steps (d) - (f).

22. The method according to Claim 21, further comprising reconstructing a surface of the heart based on the determined positions.

23. The method according to Claim 22, further comprising mapping electrical activity of the surface of the heart with at least one electrode mounted at the tip of the mapping catheter.

24. The method according to Claim 22, further comprising performing a therapeutic procedure on the surface of the heart.

25. The method according to Claim 24, further comprising performing an ablation procedure on the surface of the heart.

26. The method according to Claim 22, further comprising measuring impedance of the surface of the heart.

27. The method according to Claim 22, further comprising measuring mechanical information of the surface of the heart.

28. The method according to Claim 27, further comprising measuring movement of the surface of the heart.

29. A method for mapping a heart comprising the steps of:
(a) inserting a mapping catheter having an ultrasonic position sensor into the heart;

(b) inserting at least one reference catheter having an ultrasonic position sensor outside of the heart;

(c) bringing the tip of the mapping catheter into contact with a wall of the heart at a location;

(d) determining a position of the tip of the mapping catheter at the location;

(e) adding the position to a map;

(f) moving the tip of the mapping catheter to a second location; and

(g) repeating steps (d) - (f).

30. The method according to Claim 29, further comprising reconstructing a surface of the heart based on the determined positions.

31. The method according to Claim 30, further comprising mapping electrical activity of the surface of the heart with at least one electrode mounted at the tip of the mapping catheter.

32. The method according to Claim 30, further comprising performing a therapeutic procedure on the surface of the heart.

33. The method according to Claim 32, further comprising performing an ablation procedure on the surface of the heart.

34. The method according to Claim 30, further comprising measuring impedance of the surface of the heart.

35. The method according to Claim 30, further comprising measuring mechanical information of the surface of the heart.

36. The method according to Claim 35 further comprising measuring movement of the surface of the heart.